

D 07 Troubleshooting TACd2/n2 fans

Introduction

TAC fans use a lot of electronic components. And unfortunately, TAC fans sometimes have typical problems related to this technology and thus don't function properly. But as of today, we have gathered sufficient statistics to establish that the very largest part of the installation problems come from misreading or ignorance of the user's manual.

Statistics on 10.000 installed fans:

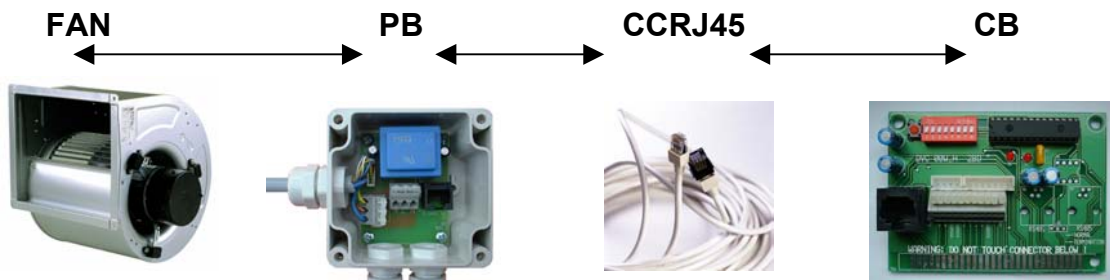
Installation	Problem calls	Misreading or ignorance of the manual	Motor	PB	RJ45 CC	CB
10.000	866	794	3	42	4	23
	100%	91,7%	0,35%	4,8%	0,46%	2,6%

So before calling in for help, or even reading the troubleshoot procedure, re-check the following 4 easy to follow steps:

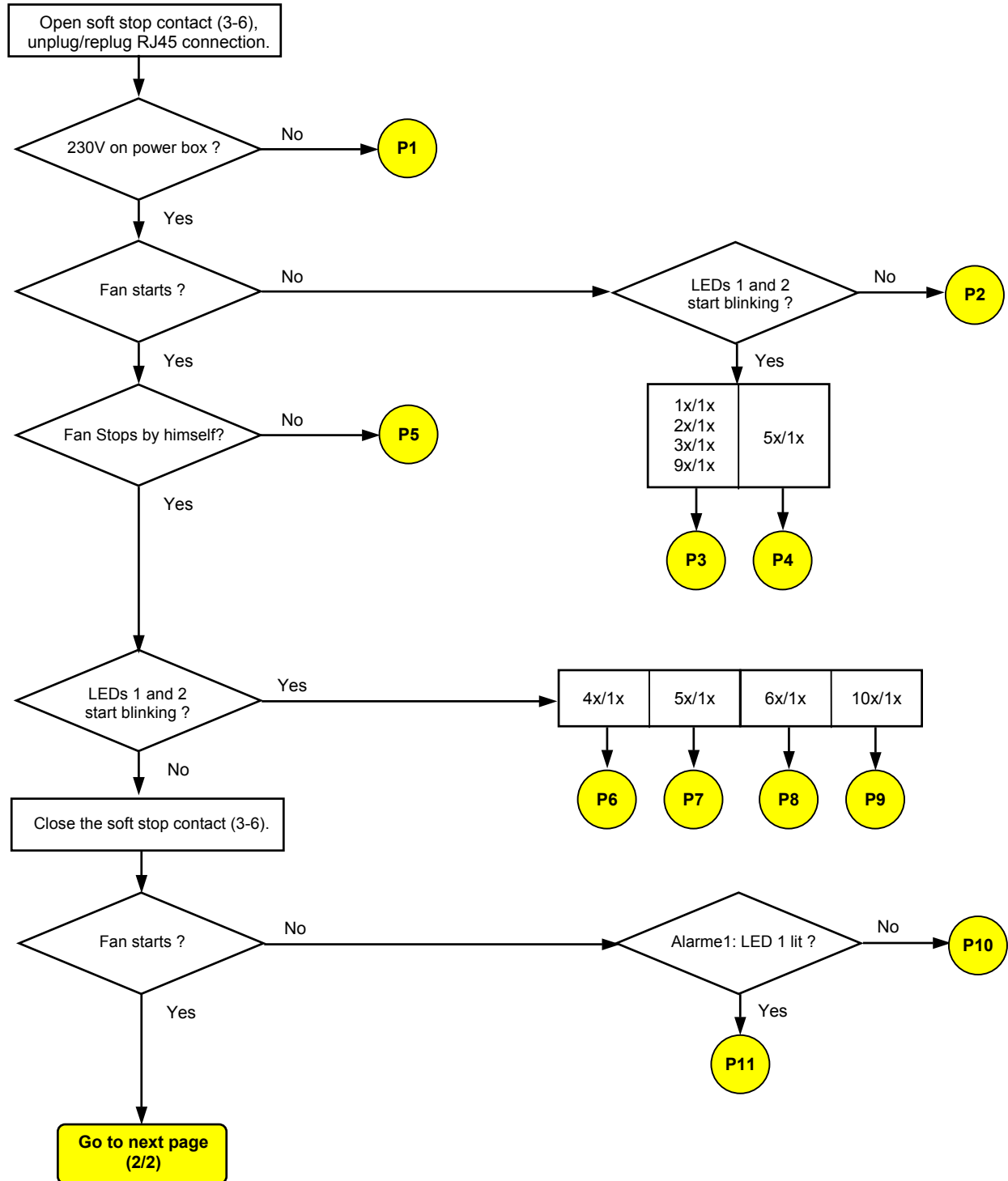
- 1) Re-read the installation manual.
- 2) Is the power supply present?
- 3) Did you wire the softstop/start setup properly?
- 4) Are all your physical connection made properly?

If you have done this then use this troubleshoot procedure to locate the problem.

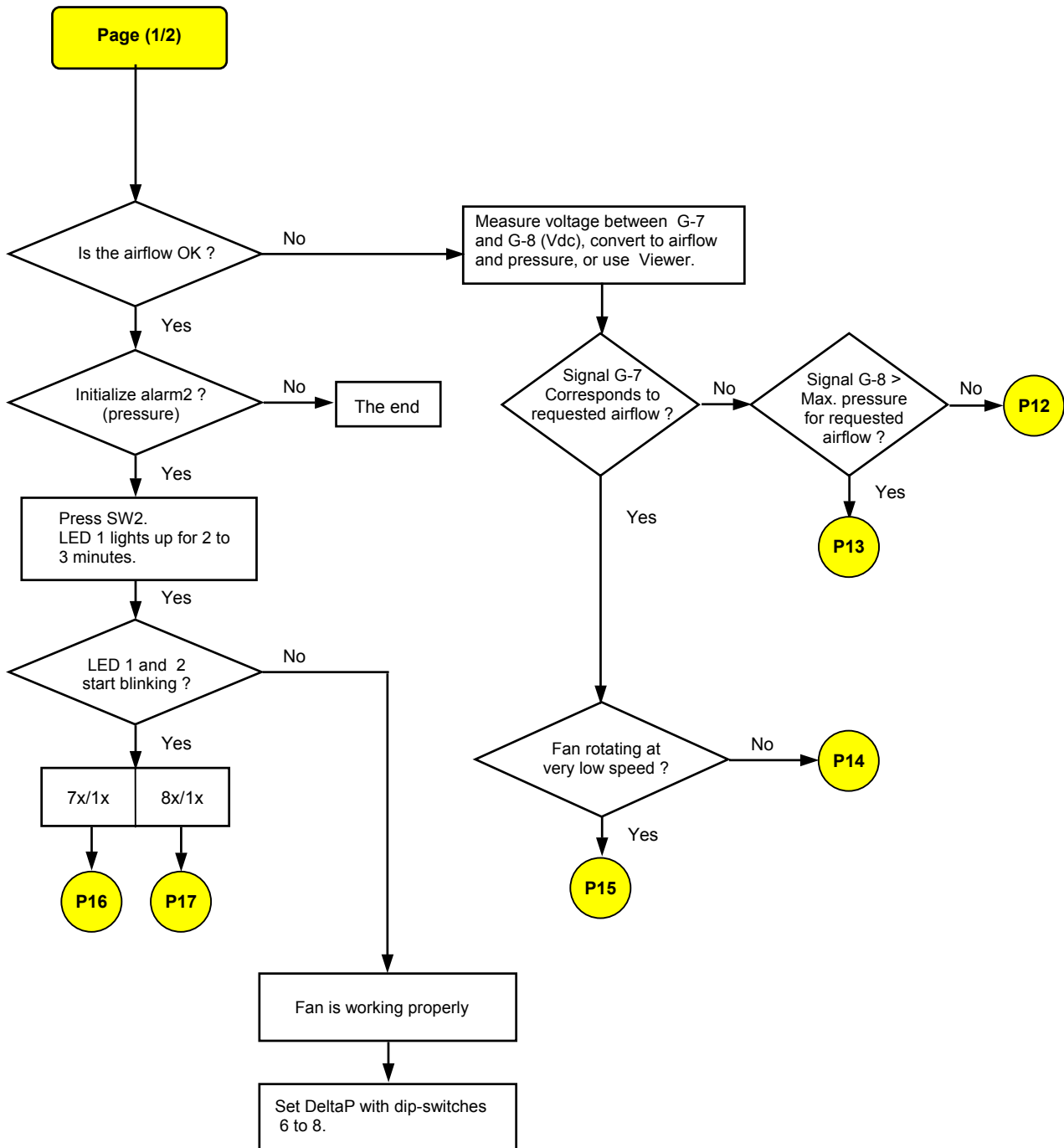
Setup and abbreviations



TACd2/n2 Troubleshoot procedure (can also be used as Startup procedure) (1/2)



TACd2 Troubleshoot procedure (can also be used as Start-up procedure) (2/2)



TACd2 Troubleshoot procedure (Startup procedure)

P1 procedure

The voltage measure shows the power box is not energized.

- 1) Verify the wiring diagram, and power supply.
- 2) Verify if the electrical protection has not triggered. If yes, verify its specifications compared to the product specifications (see installation manual TACd2 §9 - TACn2 §7).

P2 Procedure

After de-/re-connecting the RJ45 cable between PB and CB, the fan should execute an initialization run before stopping. LEDs 1 and 2 should not be blinking. If this does not occur, there is an initialization problem.

- 1) Verify that the RJ45 cable between CB and PB is well plugged and not damaged.
- 2) Measure Vdc between terminals G and 6:
 - If voltage ≈ 0 Vdc:
 - Replace power box (*).
 - If problem persists replace CC RJ45 between PB and CB (*).
 - If problem still persists replace CB (*).
 - If voltage = 12 Vdc: the fan should start. Restart procedure from beginning and verify that the fan starts – even for a short time – before stopping. If yes go to the next step.

P3 Procedure

After de-/re-connecting the RJ45 cable between PB and CB, the fan should execute an initialization run before stopping. LEDs 1 and 2 should not be blinking. If this does not occur, there is an initialization problem.

If the blinking sequence between LED 1 and 2 is one of these: 1x-1x / 2x-1x / 3x-1x / 9x-1x, there is an alteration of the data in the CB. The CB should be replaced (*).

P4 procedure

After de-/re-connecting the RJ45 cable between PB and CB, the fan should execute an initialization run before stopping. LEDs 1 and 2 should not be blinking. If this does not occur, there is an initialization problem.

If the blinking sequence between LED 1 and 2 is 5x / 1x :

- 1) Replace the PB - verify if one of the control wires on the motor side is not damaged (*).
- 2) If problem persists replace RJ45 CC between PB and CB (*).
- 3) If problem persists replace CB (*).
- 4) If problem persists replace fan (*).

P5 Procedure

The fan starts but does not stop when soft stop contact is opened. There is an initialization problem.

- 1) Verify the soft stop contact is effectively open: 'beep' contacts 3 and 6, or to be really sure, remove all the connections on these terminals. Make corrections according to findings.
- 2) If contact is effectively open, the problem comes from a bad contact on the 12Vdc line between the PB and the CB :
 - Replace PB (*).
 - If problem persists replace CC RJ45 between CB and PB (*).
 - If problem persists replace CB (*).

P6 Procedure

The fan starts then stops (soft stop contact is open), and LEDs 1 and 2 are blinking. There is an initialization failure, expressed by the following blinking sequence between LEDs: 4x / 1x.

- 1) Verify on the fan identification label if the fan is a 'Generation2' fan. (example : DD 9-9 ECM2 1/2 or DD 9-9 TAC2 1/2). If this is not the case the CB is not fitted for the fan. Replace the CB by a version fitted for the fan, or the other way around. The CB and the fan have to be compatible.
- 2) If you have a 'generation2' fan, verify if the idcode (720xxx) on the fan's label, is the same idcode as the one specified on the QC label placed on the motor.
 - If they are different: there is a programming error. Replace the fan.
 - If they are the same : the program and the fan are compatible.
 - Replace the power box (*).
 - If the problem persists replace the RJ45 CC between PB and CB (*).
 - If the problem persists replace the CB (*).
 - If the problem still persists replace the fan (*).

P7 procedure

The fan starts then stops (soft stop contact is open), and LEDs 1 and 2 are blinking. There is an initialization failure, expressed by the following blinking sequence between LEDs: 5x / 1x.

- 1) Replace the PB (verify if one of control wire on the motor connector is not damaged) (*).
- 2) If the problem persists replace the RJ45 CC between PB and CB (*).
- 3) If the problem persists replace the CB (*).
- 4) If the problem still persists replace the fan (*).

P8 procedure

The fan starts then stops (softstop contact is open), and LEDs 1 and 2 are blinking. There is an initialization failure, expressed by the following blinking sequence between LEDs: 6x / 1x.

The CB does not contain the fan's data. Replace the CB by a more recent version.

P9 procedure

The fan starts then stops (soft stop contact is open), and LEDs 1 and 2 are blinking. There is an initialization failure, expressed by the following blinking sequence between LEDs: 10x / 1x.

- 1) Replace the fan (*).
- 2) If the problem persists replace the CB (*).

P10 procedure

The initialization is correct. When closing the soft stop contact (terminals 3 and 6), the fan doesn't start and LED 1 is off.

The soft stop contact is not closed. 'beep' contacts 3 and 6, or to be really sure, remove all the connections on these terminals. Make corrections according to findings.

- 1) The fan starts : the problem is then due to this connection. Make appropriate corrections. It is compulsory to use gold contacts.
- 2) If the fan still does not start with the jumper between terminals 3 and 6:
 - Replace the CB (*).
 - If the problem persists replace the fan (*).

P11 procedure

The initialization is correct. When closing the soft stop contact (terminals 3 and 6), the fan doesn't start and LED 1 is off. The problem then comes from the control line between the CB and the PB, or comes from the motor.

- 1) Replace the PB (*).
- 2) If the problem persists , replace the RJ45 CC between PB and CB (*).
- 3) If the problem persists , replace the CB (*).
- 4) If the problem persists , replace the fan (*).

P12 Procedure

The initialization is correct. When closing the soft stop contact (terminal 3 and 6), the fan has started, but the airflow doesn't seem to be correct.

Calculate the system's airflow using 0-4,5V output signal between G and 7. The result is different than the requested airflow. Calculate then the system's pressure using 0-4,5V output signal between G and 8. It is inferior to the maximum available pressure for the requested airflow.

- 1)Control your measurements : for example : measurement on the wrong terminals, bad contact on the terminals when measuring, measurement in Vac instead of Vdc, Voltmeter failure, ...
- 2)Wait for minimum 2 minutes between the startup of the fan and your measurements, in order to allow the fan to settle to its working point.
- 3)Verify the dip-switch setting corresponds to the requested airflow for the installed fan.
- 4)After having verified the dip-switches are well positioned and waited the 2 minutes, replace the control box.

P13 Procedure

The initialization is correct. When closing the soft stop contact (terminal 3 and 6), the fan has started, but the airflow doesn't seem to be correct.

Calculate the system's airflow using 0-4,5V output signal between G and 7. The result is inferior to the requested airflow. Calculate then the system's pressure using 0-4,5V output signal between G and 8. It is on the envelope of the fan.

The fan is too 'weak' for the application. Check the system's counter pressure, try to reduce it, if not possible select a 'stronger' fan.

P14 Procedure

The initialization is correct. When closing the soft stop contact (terminal 3 and 6), the fan has started, but the airflow doesn't seem to be correct.

Calculate the system's airflow using 0-4,5V output signal between G and 7. The result is corresponding to the requested airflow. The fan is running > 100 RPM.

The fan is delivering the requested airflow. The error is in the on site measurement. If the airflow is insufficient, change the airflow request by changing the dip-switches accordingly.

P15 Procedure

The initialization is correct. When closing the soft stop contact (terminal 3 and 6), the fan has started, but the airflow doesn't seem to be correct.

Calculate the system's airflow using 0-4,5V output signal between G and 7. The result is corresponding to the requested airflow. The fan is running > 100 RPM even though the system's pressure is 'as designed' (AHU doors are closed, ducting is connected,...).

The problem comes either from the control line between PB and the fan, either from the motor.

- 1)Replace the PB (*).
- 2)If problem persists, replace RJ45 CC between PB and CB (*).
- 3)If problem persists, replace CB (*).
- 4)If problem persists, replace fan (*).

P16 Procedure

The initialization is correct. When closing the soft stop contact (terminal 3 and 6), the fan has started, but the airflow is correct.

After having pressed on SW2 to initialize a 'reference pressure', LEDs 1 and 2 start blinking. This means there is a 'reference pressure' initialization problem. The following blinking sequence between LEDs appear: 7x / 1x.

The pressure is too high for the fan's capacity, or the fan hasn't settled to the requested airflow yet.

- 1) Be sure to have waited for at least 2 minutes between the starting of the fan and pressure initialization procedure.
- 2) Reduce the system's counter pressure, or reduce the requested airflow request. Otherwise replace the fan by a stronger one.
- 3) If you cannot do anything, you'll have to work without pressure alarms. Unplug/Replug the RJ45 CC to reinitialize the setup.

P17 Procedure

The initialization is correct. When closing the soft stop contact (terminal 3 and 6), the fan has started, but the airflow is correct.

After having pressed on SW2 to initialize a 'reference pressure', LEDs 1 and 2 start blinking. This means there is a 'reference pressure' initialization problem. The following blinking sequence between LEDs appear: 8x / 1x.

This means the system is functioning in an unstable working zone, the computations are impossible.

- 1) Be sure to have waited for at least 2 minutes between the starting of the fan and pressure initialization procedure.
- 2) Modify the working point to enter a stable working zone.
- 3) If you cannot do anything, you'll have to work without pressure alarms. Unplug/Replug the RJ45 CC to reinitialize the setup.

(*) If several fans are installed, we advise to swap components to determine which component could be defect.